

Discussion Problem Set 15
Conjugation, Resonance, Dienes

1. Draw another resonance structure and the resonance hybrid for this radical. (15.20c)
2. Predict all major products of these reactions. (15.21a, 15.22c, 15.23)
3. Label the molecules as “conjugated” or “nonconjugated.” (16.2)
4. Draw resonance structure(s) and rank them according to stability. Draw the hybrid. (16.7)

5. Draw all products of these reactions. (16.15d, 16.23)
6. (16.43) Addition of HCl to this diene could possibly produce these three products, but product C is not observed.
- A. Label pdt A and pdt B as the 1,2-addition product or 1,4-addition product.
 - B. Label pdt A and pdt B as thermodynamic or kinetic product and explain.
 - C. Why is pdt C not observed? (Hint: Think about the intermediate.)
7. Provide a multi-step synthesis using the Diels-Alder reaction in one step. (16.55)